

Mint of the United States at Philadelphia,

MELTING AND REFINING DEPARTMENT,

Philadelphia, January 22⁵, 1894

Hon O. C. Borbyshell
Superintendent

Sir:

In response to the letter of Hon. R. E. Prentiss
Director of the Mint, under date of the 18th inst.
referring to the merits of the Taylor and Phoenix
lens crucibles, and referred to me for reply;

I have to say; That a comparison was made
in Sept. and Oct. last between these crucibles in
melting silver. Since that time our work has
been mostly on Gold, which will account for
the limited nature of the test as to silver melting.

Two Phoenix crucibles were placed in charge
of two good melters - Cobb and Swope, one to
each on Sept. 21st with the following results.

Sept. Melt

(2)

Date Cobb. Melts Sweep Melts

Sept 25 - Cobb 5- 5-

" 22 5- 5-

Oct 5th 5- 5-" 7th $\frac{3}{18}$ $\frac{3}{18}$

The pots were then considered unsafe for further use and were left out. - This I consider a fairly good showing, but is exceeded by that made with the Taylor crucible, as follows

Date - Melt	Melts	Melt	Melts
Sept. 25 - Cobb -	6	Sweep	6
27 "	6		6
28 "	7		7
29 "	6		6
(Saturday) 30 "	4		4
Oct. 2 "	6		6
3 "	6		6
4 "	7		7
5- "	8		8
	<u>56</u>		<u>56</u>

The Trial of the Phoenix crucibles was suspended as will be seen, from Sept. 22nd to Oct 6th

(3)

for the reason that a change had to be made in the size of the charge, to suit the differing capacity of the two makes of crucibles. The trial was resumed Oct 5th with the same crucibles, when less steps of work made it more convenient.

The different holding capacity soon became evident, and to roughly make comparison, the following test was made. A Phoenix and a Taylor crucible was each filled with dry sand and the weight of the contained sand taken, with following result. Phoenix 37 lbs. Taylor 40½ lbs. Showing an advantage of nearly 10 % per cent in favor of the Taylor crucible, in holding capacity.

It should be stated in justice to the Phoenix Co., that some years ago ~~the~~ Taylor & Son — ^{special} then under contract to the Mint, made a mould for a 70 lb crucible which should best suit our melting ~~and~~ furnaces, and they have since continued to furnish this special crucible, when

(4)

awarded the contract. We have had no experience with any 70 crucible which they may supply to the general Trade. Our trials with the Taylor crucible were made on some of this class which we had in stock from last (fiscal) years supply.

The difference in holding capacity is an important item since it enables us, with the same force and furnace capacity - to get out as much work in Ten (10) melts with the Taylor crucible, as in Eleven (11) melts with the Phoenix. By using the latter we should lose the amount of (say) one melt on each furnace every two days. One half melt per day, per furnace. The entire cost of the crucible would not compensate for this difference in the output for eight hours work.

The large demand on this Dept. for gold ingot melting during the last four months

(85)

has made it imperative to get the most work out of our furnaces, in order to avoid overtime on our payrolls. We have had no overtime in our melting rooms. As has been stated, we should have been delayed, both in the making up and in the melting of lesser charges in our gold furnaces, had we used the Phoenix crucible and even found it as durable as the other. For these reasons we have made no tests of the Phoenix crucible in gold melting.

In conclusion, I would say that the limited trial of the Phoenix crucibles does not justify any criticism on their fair quality. But the record of melts made in the Taylor crucible, over extended periods shows much better results in our manner of working, than in this or previous trials of those sent us by the Phoenix Co.

This fact, taken in connection with the larger holding capacity ^{of the Taylor crucible}, induces me to recommend

(6)

The latter as The more economical purchase
even at a greater difference than appears
in The price charged.

It may not be amiss to say that both
are offered at a price which, in my judg-
ment, can leave little profit to The maker

Respectfully Yours

D. K. Smith

Walter Refiner

Mint of the United States at Philadelphia,
Melting and Refining Department,
Philadelphia,
January 22, 1894

Hon. O.C. Bosbyshell
Superintendent

Sir:

In response to the letter of Hon. R.E. Preston Director of the Mint, under date of the 18th inst. referring to the merits of The Taylor and Phoenix Co.'s crucibles, and referred to me for reply, I have to say that a comparison was made in Sept. and Oct. last between these crucibles in melting silver. Since that time our work has been mostly on Gold, which will account for the limited nature of the test as to silver melting. Two Phoenix crucibles were placed in charge of two good melters, Cobb and Swope, one to each on Sept. 21st with the following results.

Melter	Melts		Melts
Jak Cobb		Swope	
Sept. 21 Cobb	5		5
" 22	5		5
Oct. 5th	5		5
" 7th	<u>3</u>		<u>3</u>
	18		18

The pots were then considered unsafe for further use and were left out. This I consider a fairly good showing, but is exceeded by that made with the Taylor crucible, as follows

<i>Date</i>	<i>Melter</i>	<i># Melt</i>	<i>Melter</i>	<i># Melt</i>
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27	"	6		6
28	"	7		7
29	"	6		6
(Saturday) 30	"	4		4
Oct. 2	"	6		6
3	"	6		6
4	"	7		7
5	"	<u>8</u>		<u>8</u>
		56		56

The trial of the Phoenix crucibles was suspended as will be seen, from Sept. 22nd to Oct. 6th for the reason that a change had to be made in the size of the charge to suit the differing capacity of the two makes of crucibles. The trial was around Oct. 5th with the same crucibles, when less strips of work made it more convenient.

The different holding capacity soon became evident, and to roughly make comparison. The following test was made. A Phoenix and a Taylor crucible was each filled with dry sand and the weights of the contained sand taken, with following result. Phoenix 37 lbs. Taylor 40 ½ lbs. Showing an advantage of nearly 10% per cent in favor of the Taylor crucible, in holding capacity.

It should be stated in justice to the Phoenix Co., that some years ago Taylor & Son – Then under contract to the Mint, made a special mould for a 70 crucible which should best suit our melting furnaces, and they have since continues to furnish this special crucible when awarded the contract. I have had no experience with any 70 crucible which they may supply to the general trade. Our trials with the Taylor crucible were made on some of this clap which we had in stock from last (fiscal) years supply.

The difference in holding capacity is an important item since it enable us with the same force and furnace capacity to get out as much work in ten (10) melts with the Taylor crucible, as in eleven (11) melts with the Phoenix. By using the latter we should lose the amount of (say) one melt on each furnace every two days. One half melt per day, per furnace. The entire cost of the crucible would not compensate for this difference in the output for eight hours work.

The large demand on this Dept. for gold ingot melting during the last four months has made it imperative to get the most work out of our furnaces, in order to avoid overtime on our payrolls. We have had no overtime in our melting rooms. As has been stated, we should have been delayed, both in the making up and in the melting of lesser charges in our gold furnaces, had we used the Phoenix crucible and even found it as durable as the other. For these reasons we have made us testes of the Phoenix crucible in gold melting.

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This fact taken in connection with the larger holding capacity of the Taylor crucible induces me to recommend the latter as the more economical purchase even at a greater difference than appears in the price charged.

It may not be amiss to say that both are offered at a price which, in my judgment, can leave little profit to the maker.

Respectfully Yours,
D.K. Tuttle
Melter Refiner